CWRA+ at IMSA

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Why CWRA+?

• Measures critical thinking skills
  • Real-world, problem-solving performance tasks

• Enables IMSA to better understand how well students are learning critical-thinking skills
  • Provides snapshot of proficiency, growth, and program efficacy

• No Ceiling Effect
  • Scores range from ~400 to ~1600
    • Maximum IMSA student score = 1545 (sophomore) & 1550 (senior)
  • Only around 1/4 of IMSA students have reached Advanced level by senior year
CWRA+ Testing Schedule

• Fall of 2011 – Spring of 2017
  • Two times
    • Fall of sophomore year & Spring of senior year

• Fall of 2017 – Spring of 2019
  • Four times
    • Fall of sophomore year & Spring of sophomore, junior, and senior years

• Fall of 2019 – Forward
  • Three times
    • Fall of sophomore year & Winter of junior and senior years
CWRA+ Components

• Performance Task – Requires students to utilize critical-thinking skills
  • Analysis and Problem Solving
  • Writing Effectiveness
  • Writing Mechanics

• Selected-Response Questions – Requires students to apply critical-thinking skills
  • Scientific and Quantitative
  • Critical Reading and Evaluation
  • Critiquing an Argument
Sample CWRA+ Performance Task: Parks

PERFORMANCE TASK: PARKS

INSTRUCTIONS
This is an example of a CWRA+ Performance Task (PT). In the course of this practice PT, you will prepare a written response to a hypothetical but realistic situation. The PT is made up of an introductory scenario, a question, and six documents/information sources. You will use information from the Document Library in carrying out the task.

While your personal values and experiences are important, you should base your response solely on the evidence provided in the Document Library.

SCENARIO
Tiverton is a large city located near a national forest. The city currently funds two programs for middle school students. One program, Forest Adventures, is a summer camping program. The other program, Sports & School Experience, combines academic tutoring and sports activities.

Tiverton can no longer afford to fund both programs at their current levels. At tonight's City Council meeting, the council members are going to discuss whether the city should fund only one program. You work for the city manager of Tiverton, Christine Dillingham, and she has asked you to help prepare for the meeting by reviewing the documents provided in the Document Library. Your final task will be to write a report for Ms. Dillingham that analyzes the two programs and makes a recommendation about how the city should fund the middle school programs. You have 60 minutes to complete this entire task.

PROMPT
Your task is to write a report for Ms. Dillingham that analyzes the two programs and answers the question, “If Tiverton cannot afford to fund the Forest Adventures and the Sports & School Experience programs at their current levels, what should the city do?” You could recommend funding only one program, modifying the program(s), or something else. In your report, support your recommendation with information found in the Document Library and explain why other possible recommendations are not as good.

While your personal values and experiences are important, please answer the question in this task solely on the basis of the information provided above and in the Document Library.
Fueling the Future

In a quest to solve the energy problems of the twenty-first century—a quest that is to find sustainable and renewable sources of energy that are less destructive to the environment yet economical enough to have mass appeal—scientists throughout the world are experimenting with new forms of fossil fuel production. While oil is still the most common source of fuel, there is a finite amount of it, and new alternatives will become necessary to sustain the supply of energy that we are accustomed to.

Corn-based ethanol, the most common alternative to traditional fossil fuels (primarily coal, petroleum, and natural gas), is mixed into gasoline in small quantities, and it now accounts for about 10% of the fuel supply from sources within the United States. Because corn is grown on farmland, it is subject to price fluctuations based on supply and demand of the crop, as well as disruptions resulting from naturally occurring events, such as droughts and floods. As a result, nearly 40% of the corn grown in the United States is used for fuel, and the demand for corn-based ethanol is rising. To meet this demand, wetlands, grasslands, and forests are all being converted into farmland with the sole intention of growing corn for more ethanol production. Corn grown for ethanol has become a more valuable commodity for farmers than crops grown for food, and this has negatively affected consumers worldwide, as shown by the increasing price of food over time.

Another alternative that has gained attention in recent years is the harvesting of biofuel from algae. Biodiesel, a type of biofuel, is produced by extracting oil from algae, much like the process involved in creating vegetable oils from corn or soybeans. Ethanol can also be created by fermenting algae.

Algae biofuel has some unique benefits that separate it from other fossil fuel alternatives. To begin with, while all fuels create carbon dioxide when they are burned, algae have the ability to sequester and use that carbon dioxide during photosynthesis while they are growing. In this regard, the advantage is enormous. The process of growing algae actually absorbs more carbon dioxide than is released into the atmosphere when it is burned for fuel. Most manufacturing processes strive for “carbon neutrality”—the balance between carbon emissions and depletion corresponding to net carbon output of zero. Even better, algae-based biofuel can be described as “carbon negative.” Other forms of biofuel can make similar claims. For example, ethanol from corn also eliminates carbon dioxide in the atmosphere through photosynthesis. Unlike corn, however, algae grow in water, usually in man-made ponds built on land not used for crops. Additionally, algae do not require fresh water. Instead, algae can be grown in salt water, and, in some cases, even sewage water and other waste material.

The most promising aspect of algae biofuel stems from its yield. When compared to other biofuel producers, algae’s fuel yield per harvested acre is over 500 times greater than that of corn.

The following chart compares commonly used biofuel crops on several important factors.

<table>
<thead>
<tr>
<th>Product</th>
<th>Oil Yield</th>
<th>Harmful Gas Emissions</th>
<th>Use of Water to Grow Crop</th>
<th>Fertilizer Needed to Grow Crop</th>
<th>Energy Used to Extract Fuel from Crop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol from Corn</td>
<td>18</td>
<td>high</td>
<td>high</td>
<td>low</td>
<td>medium</td>
</tr>
<tr>
<td>Biodiesel from Soybeans</td>
<td>48</td>
<td>high</td>
<td>high</td>
<td>low</td>
<td>medium</td>
</tr>
<tr>
<td>Biodiesel from Canola</td>
<td>127</td>
<td>medium</td>
<td>medium</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Biodiesel from Algae</td>
<td>16,000</td>
<td>negative</td>
<td>medium</td>
<td>high</td>
<td>high</td>
</tr>
</tbody>
</table>

Figure 1: Food and oil price indices (based on information found at www.fao.org and www.ft.com)

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Significant Growth on CWRA+

Significant Growth Goal → Increase 10% or More of Total Possible Points between Sophomore and Senior Years

- Significant Growth Goal = (1600 – Sophomore Score Total) * .10
- Score Difference = Senior Total Score – Sophomore Total Score

If Score Difference ≥ Significant Growth Goal
- Student showed significant growth while at IMSA
Advanced Level on CWRA+

- **Advanced Level Goal** → % of students who score at the Advanced mastery level by senior year

**Five Levels of Mastery**

<table>
<thead>
<tr>
<th>Level</th>
<th>% of Private School Seniors (2017-2018)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Below Basic</td>
<td>1</td>
</tr>
<tr>
<td>Basic</td>
<td>18</td>
</tr>
<tr>
<td>Proficient</td>
<td>22</td>
</tr>
<tr>
<td>Accomplished</td>
<td>48</td>
</tr>
<tr>
<td>Advanced</td>
<td>11</td>
</tr>
</tbody>
</table>
Discussion

• Discuss and share your thoughts regarding the recent administrations of the CWRA+

• What recommendations do you have regarding implementing the CWRA+ at IMSA?